

22. (Amended) A purified protein comprising at least a functionally active portion of the amino acid sequence in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-64, 66-79, or 81-93, wherein the purified protein is not contained in a gel.
23. (Amended) A purified molecule comprising an amino acid sequence having at least 60% identity to amino acids numbers 1 to 100 in Figure 2 (SEQ ID NO:2) over a 100 amino acid sequence, wherein the purified protein is not contained in a gel.

## REMARKS

### 1. THE AMENDMENTS TO THE SPECIFICATION

The Specification has been amended to include reference to International Application No. PCT/US99/13024 filed June 11, 1999, of which the present application is a national stage application. Also, pursuant to 37 C.F.R. § 1.78(a)(2), the first sentence of the amended specification indicates that International Application PCT/US99/13024 was published under PCT Article 21(2) in English.

### 2. THE AMENDMENTS TO THE CLAIMS

Claims 1-48 were pending.<sup>1</sup> Claims 5 and 6 have been canceled without prejudice herein above. Accordingly, claims 1-4 and 7-48, as amended herein, will be pending upon entry of this amendment. Applicant expressly reserves the right to prosecute claims drawn to any canceled subject matter or subject matter removed by amendment in related applications.

Claims 3, 4, 7, 11, and 20-23 have been amended to more particularly point out and distinctly claim the subject matter that Applicant regards as his invention.

The subject matter of the amendments to the claims is fully supported in the specification as originally filed. In particular, claim 4 has been amended to recite a purified

---

<sup>1</sup> Claims 1-4 and 7-48 correspond to claims 1-46, respectively, of a July 30, 2001 Reply to Written Opinion in PCT/US99/13024. Claims 3, 4, 7, 11, and 20-23 of PCT/US99/13024 were amended under Article 34 under the Patent Cooperation Treaty and under Rules 66.3(a) of the Regulations under the Patent Cooperation Treaty, in the Reply to Written Opinion filed July 30, 2001. In the Reply, Claims 7-48 of PCT/US99/13024 were renumbered as claims 5-46, respectively, including corresponding changes in references to base claims present in dependent claims. A courtesy copy of each of the PCT Written Opinion, dated June 28, 2001, and the Reply to Written Opinion, dated July 30, 2001, are attached hereto as Exhibits C and D, respectively.

protein. Support for this amendment may be found, *inter alia*, at page 6, lines 4-6, of the specification.

Claims 3, 4 and 7 have been amended to recite that the purified protein is not contained in a gel. Support for these amendments may be found, *inter alia*, at page 6, lines 4-6, of the specification.

Claim 11, which previously depended from original claim 6, has been amended to depend from claim 4. Support for this amendment may be found, *inter alia*, at page 4, lines 14-20; page 7, lines 20-21; page 8, lines 1-3; and page 9, lines 13-15.

Claims 20-23 have been amended to recite that the purified protein is not contained in a gel. Support for these amendments may be found, *inter alia*, at page 6, lines 4-6, of the specification.

No new matter is added by the foregoing amendments to the specification and claims. The amendments made herein are believed to place the claims in condition for allowance.

### **CONCLUSION**

Applicant respectfully request that these amendments and remarks be entered and made of record in the file of the above-identified application. No fee is believed to be due in connection with submission of this Preliminary Amendment. Should any fee be required, however, please charge such fee to Pennie & Edmonds LLP Deposit Account No. 16-1150.

Respectfully submitted,

Date: December 11, 2001

  
Adriane M. Antler 32,605  
(Reg. No.)

**PENNIE & EDMONDS LLP**  
1155 Avenue of the Americas  
New York, New York 10036-2711  
(212) 790-9090

### **Enclosures:**

- Exhibit A: Marked up version of the claims showing the amendments made herein
- Exhibit B: Claims that will be pending upon entry of the present amendment
- Exhibit C: PCT Written Opinion dated June 28, 2001, issued in connection with PCT/US99/13024
- Exhibit D: Reply to Written Opinion filed July 30, 2001 in connection with PCT/US99/13024

## EXHIBIT A

Marked Up Version of the Amended Claims  
U.S. National Stage Application of PCT/US99/13024

Matter that has been deleted from the claims is indicated by brackets and matter that has been added to the claims is indicated by underlining.

3. (Amended) A purified protein comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) with one or more conservative substitutions relative to said sequence, wherein the purified protein is not contained in a gel.
4. (Amended) A purified protein comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) from amino acid residues 1 to 93 with one or more conservative substitutions relative to the sequence in Figure 2, wherein the purified protein is not contained in a gel.
7. (Amended) A purified protein comprising at least 8 contiguous amino acids of the gp35 protein sequence depicted in Figure 2 (SEQ ID NO:2) from amino acids numbers 1 to 24, and which displays one or more functional activities of a gp35 protein, wherein the purified protein is not contained in a gel.
11. (Amended) The protein of claim [6] 4 which specifically binds with the P34 protein oligomer of bacteriophage T4.
20. (Amended) A purified molecule comprising an amino acid sequence having at least 30% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO:2) over a 36 amino acid sequence, wherein the purified molecule is not contained in a gel.
21. (Amended) A purified protein having at least 60% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO:2) over a 36 amino acid sequence, wherein the purified protein is not contained in a gel.
22. (Amended) A purified protein comprising at least a functionally active portion of the amino acid sequence in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-

56, 1-78, 1-93, 8-17, 57-64, 66-79, or 81-93, wherein the purified protein is not contained in a gel.

23. (Amended) A purified molecule comprising an amino acid sequence having at least 60% identity to amino acids numbers 1 to 100 in Figure 2 (SEQ ID NO:2) over a 100 amino acid sequence, wherein the purified protein is not contained in a gel.

[illegible]

**EXHIBIT B****Claims Pending After Entry of the Preliminary Amendment Dated December 11, 2001**  
**U.S. National Stage Application of PCT/US99/13024**

---

1. A composition comprising at least 1 microgram of a purified nondenatured gp35 protein, with the proviso that said composition is not a gel.
2. A purified bacteriophage T4 gp35 protein that is not contained in a gel.
3. (Amended) A purified protein comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) with one or more conservative substitutions relative to said sequence, wherein the purified protein is not contained in a gel.
4. (Amended) A purified protein comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) from amino acid residues 1 to 93 with one or more conservative substitutions relative to the sequence in Figure 2, wherein the purified protein is not contained in a gel.
7. (Amended) A purified protein comprising at least 8 contiguous amino acids of the gp35 protein sequence depicted in Figure 2 (SEQ ID NO:2) from amino acids numbers 1 to 24, and which displays one or more functional activities of a gp35 protein, wherein the purified protein is not contained in a gel.
8. The protein of claim 7 which is able to be bound by an antibody directed against a gp35 protein.
9. The protein of claim 7 which has only conservative substitutions relative to the sequence in Figure 2 (SEQ ID NO:2).
10. A molecule comprising the protein of claim 7.
11. (Amended) The protein of claim 4 which specifically binds with the P34 protein oligomer of bacteriophage T4.

12. A purified fragment of the protein of claim 4, which comprises at least 8 contiguous amino acids of the gp35 protein sequence depicted in Figure 2 (SEQ ID NO:2) from amino acids numbers 1 to 24, and which displays one or more functional activities of a gp35 protein.
13. The fragment of claim 12 which is able to be bound by an antibody directed against a gp35 protein.
14. A purified protein variant of a gp35 protein of bacteriophage T4, that is able to be bound by an antibody directed against a gp35 protein, wherein the interaction of said variant with the P36 protein oligomer of bacteriophage T4 is unstable at temperatures between about 40°C and about 60°C.
15. A purified protein variant of a gp35 protein of bacteriophage T4, that is able to be bound by an antibody directed against a gp35 protein, wherein the interaction of said variant with the P34 protein oligomer of bacteriophage T4 is unstable at temperatures between about 40°C and about 60°C.
16. A purified protein variant of a gp35 protein of bacteriophage T4, that (a) is able to be bound by an antibody directed against a gp35 protein, and (b) is conjugated to a group that confers the ability of the variant to bind a ligand.
17. The variant of claim 16, wherein said ligand is selected from the group consisting of avidin, immunoglobulin, and a divalent metal ion.
18. A purified molecule comprising a bacteriophage T4 gp35 protein fragment, wherein said fragment consists of at least the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-93, 57-64, 66-79 or 81-93.
19. A purified molecule comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-93, 57-64, 66-79 or 81-93, with one or more conservative substitutions relative to said sequence.

20. (Amended) A purified molecule comprising an amino acid sequence having at least 30% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO:2) over a 36 amino acid sequence, wherein the purified molecule is not contained in a gel.
21. (Amended) A purified protein having at least 60% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO:2) over a 36 amino acid sequence, wherein the purified protein is not contained in a gel.
22. (Amended) A purified protein comprising at least a functionally active portion of the amino acid sequence in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-64, 66-79, or 81-93, wherein the purified protein is not contained in a gel.
23. (Amended) A purified molecule comprising an amino acid sequence having at least 60% identity to amino acids numbers 1 to 100 in Figure 2 (SEQ ID NO:2) over a 100 amino acid sequence, wherein the purified protein is not contained in a gel.
24. The purified fragment of claim 7, wherein said fragment lacks at least 10 contiguous amino acids of the sequence depicted in Figure 2 (SEQ ID NO:2).
25. A purified nucleic acid, comprising a nucleotide sequence encoding a gp35 protein having the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2), operably linked to a heterologous promoter that controls expression of the nucleotide sequence.
26. A purified nucleic acid, comprising a nucleotide sequence encoding a gp35 protein having the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2), contiguous with a sequence of at least 10 nucleotides that is not of bacteriophage T4.
27. The purified nucleic acid of claim 25, further comprising nucleotide sequences encoding gp36, gp37 and gp57 proteins, respectively, operably linked to said promoter.
28. The purified nucleic acid of claim 25, in which the nucleic acid is DNA.

29. The purified nucleic acid of claim 25, in which the nucleic acid is RNA.
30. A purified nucleic acid comprising a nucleotide sequence absolutely complementary to a nucleotide sequence encoding a gp35 protein having the amino acid sequence depicted in Figure 2 (SEQ ID NO:2), contiguous with a sequence of at least 10 nucleotides that is not of bacteriophage T4.
31. A purified nucleic acid comprising at least 850 contiguous nucleotides of a *gp35* DNA sequence, with the proviso that the nucleic acid does not contain a bacteriophage T4 promoter.
32. A purified nucleic acid, comprising a nucleotide sequence encoding a gp35 protein consisting of at least the amino acid sequence shown in Figure 2 from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-93, 57-64, 66-79, or 81-93.
33. A purified nucleic acid comprising a nucleotide sequence encoding a protein consisting of at least the amino acid sequence shown in Figure 2 (SEQ ID NO:2) from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-93, 57-64, 66-79 or 81-93, with one or more conservative substitutions relative to said sequence.
34. A purified nucleic acid, comprising the nucleotide sequence depicted in Figure 2 (SEQ ID NO:1) from nucleotide numbers 1 to 1,116, wherein said sequence is contiguous to a 3' termination codon.
35. A purified nucleic acid, comprising a nucleotide sequence encoding a protein having at least 30% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO:2) over a 36 amino acid sequence.
36. A purified nucleic acid, comprising a nucleotide sequence encoding a protein containing at least a functionally active portion of the amino acid sequence in Figure 2 from amino acids numbers 1-17, 1-56, 1-78, 1-93, 8-17, 57-64, 66-79, or 81-93.
37. A purified nucleic acid, comprising a nucleotide sequence encoding the protein of claim 12.



38. The purified nucleic acid of claim 37, wherein said protein is missing at least 10 contiguous amino acids of the sequence depicted in Figure 2 (SEQ ID NO:2).
39. A nucleic acid vector comprising the nucleic acid of claim 26 or 33.
40. An expression vector comprising the nucleic acid of claim 33 operably linked to a heterologous promoter that controls expression of the nucleotide sequence in a host cell.
41. A host cell that contains the nucleic acid of claim 25.
42. A host cell that contains the nucleic acid of claim 33.
43. A host cell that contains the nucleic acid of claim 33 operably linked to a heterologous promoter that controls expression of the nucleotide sequence in the host cell.
44. A method of producing a protein comprising growing the host cell of claim 41 such that the gp35 protein is expressed by the cell, and recovering the expressed protein.
45. A method of producing a protein comprising growing the host cell of claim 43 such that the encoded protein is expressed by the cell, and recovering the expressed protein.
46. The product of the method of claim 44.
47. The product of the method of claim 45.
48. A kit comprising in one or more containers a pair of nucleic acid primers capable of priming amplification of at least a portion of a gp35 gene, in which the 5' primer is upstream of or comprising a sequence encoding the N-terminus of a gp35 protein.